

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OPERATING PERMIT TECHNICAL REVIEW DOCUMENT**

**Permitting and Compliance Division
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**ASARCO Incorporated
100 Smelter Road, Highway 12 East
P.O. Box 1230
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NW1/4, Section 36, Township 10 North, Range 3 West**

The following table summarizes the air quality programs testing, monitoring, and reporting requirements applicable to this facility.

Facility Compliance Requirements	Yes	No	Comments
Source Tests Required	X		
Ambient Monitoring Required	X		
COMS Required	X		
CEMS Required	X		
Schedule of Compliance Required		X	
Annual Compliance Certification and Semiannual Reporting Required	X		
Monthly Reporting Required		X	
Quarterly Reporting Required	X		
Applicable Air Quality Programs			
ARM Subchapter 7 Preconstruction Permitting	X		#2557-11
New Source Performance Standards (NSPS)	X		40 CFR 60, Subpart R
National Emission Standards for Hazardous Air Pollutants (NESHAPS)	X		40 CFR 61, Subpart M
Maximum Achievable Control Technology (MACT)	X		40 CFR 63, Subpart TTT
Major New Source Review (NSR)	X		
Risk Management Plan Required (RMP)		X	
Acid Rain Title IV		X	
State Implementation Plan (SIP)	X		Pb SIP, SO ₂ SIP, General SIP

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SECTION I GENERAL INFORMATION

A. Purpose

This document establishes the basis for the decisions made regarding the applicable requirements, monitoring plan, and compliance status of emission units affected by the operating permit for this facility. The document is intended for reference during review of the proposed permit by the EPA and the public. It is also intended to provide background information not included in the operating permit, and to document issues that may become important during modifications or renewals of the permit. Conclusions in this document are based on information provided in the original application submitted by ASARCO Incorporated (ASARCO) on April 19, 1996, and additional submittals/requests to the Montana Department of Environmental Quality (Department) on April 24, 2000, June 28, 2002, and September 25, 2003.

B. Facility Location

The ASARCO smelting facility is located in the Northwest 1/4 of Section 36, Township 10 North, Range 3 West. The East Helena Plant is located within the City of East Helena, 3 miles to the east of Helena. Highway 12 serves as the major thoroughfare between the City of Helena and the City of East Helena, as well as the northern boundary of the ASARCO facility. The ASARCO facility is located within a 100 kilometer (km) radius of the Gates of the Mountains and Scapegoat Wilderness areas and within 10.5 km of the Helena National Forest (the nearest national forest).

C. Facility Background Information

The ASARCO East Helena Plant was constructed in 1888 for the purpose of processing ores from local mines. The East Helena Plant was built by the Helena and Livingston Smelting and Reduction Company and represents one of the original units organized in 1899 to form the American Smelting and Refining Company, and later ASARCO Incorporated. The East Helena facility has operated as a lead smelter (and with the designation of a Primary Lead Smelter) since its construction. The facility also produced Zinc, which was discontinued permanently in 1993 with the closure of the Zinc Fuming Plant.

ASARCO describes the facility as a custom smelter. A custom smelter, as defined by ASARCO, is a facility that processes ores and concentrates produced by individuals and companies other than ASARCO. Currently, the East Helena smelter receives ores and concentrates from several foreign countries and numerous states throughout the United States. The East Helena smelter produces lead bullion from a variety of both domestic and foreign concentrates, ores, fluxes, byproducts, and other non-ferrous metal bearing materials. In addition to the production of lead bullion, the ASARCO East Helena smelter also produces sulfuric acid (the Acid Plant is the Primary SO₂ Control Device for the Sinter Plant) and copper bearing speiss/matte.

The National Ambient Air Quality Standards (NAAQS), 40 CFR Part 50, were promulgated November 25, 1971. ASARCO SO₂ emissions were determined to violate the SO₂ NAAQS (Primary Std.), and subsequently the East Helena Facility was subject to a Sulfur Oxides Control Strategy submitted to EPA on May 21, 1975. A secondary SO₂ NAAQS was promulgated on September 14, 1973. A Lead NAAQS (Primary and Secondary Standards) was promulgated October 5, 1978. The ASARCO East Helena facility was determined to violate the NAAQS, Primary and Secondary, for SO₂ and Lead. As a result, the state of Montana and ASARCO have developed several control strategies for SO₂ and Lead, and currently have control plans that demonstrate compliance with the SO₂ NAAQS (Primary) and the Lead NAAQS.

The primary SO₂ emission control plan was effectuated by the Board of Environmental Review (BER) Order dated March 18, 1994. The Lead emission control plan is effectuated by BER Orders dated: August 4, 1995; April 12, 1996; June 21, 1996; August 28, 1998; and September 15, 2000. A control plan for the secondary SO₂ NAAQS is currently under development, and was anticipated to be submitted to EPA in 2001.

ASARCO applied for and received a permit, #2557, to construct the Concentrate Storage and Handling Building (CSHB) with a ventilation system and 3 baghouses to control particulate and lead emissions. Permit #2577 was issued June 6, 1989. The building houses 2 cranes, 16 storage bins, blending area, crushing mill with baghouse, 12 belt conveyor feeders and 1 feeder collection conveyor. All unprocessed, lead-bearing ore concentrate handling is now done in the enclosure. Prior to construction of the CSHB, the ore concentrate materials were handled outside by front-end loaders. Blending was performed in the old New Deal Building until it burned down in July 1987. The New Deal Building had about 21,000 acfm of ventilating capacity for the feeders.

Permit **#2557-01** was issued to ASARCO on July 6, 1993, for the construction of a ventilation system within ASARCO's sinter plant operation. The ventilation system is used along with the two existing systems. The system is currently referred to as the Sinter Plant Ventilation System (SPVS), and consists of hoods connected by ductwork to a baghouse with a capacity of 55,000 acfm. The baghouse exhausts through the existing CSHB stack. The permit alteration also incorporated all other existing permits issued to ASARCO (Permits #2557, #1417, and #794-031775) and provided an enforceable tool for shutting down the zinc fuming plant and expiring the permits associated with the zinc plant (#529-011573, #581-072173, and #621-092673). The alteration also identified other permits previously issued to ASARCO, that were revoked (#1542 and #565-062573).

Permit **#2557-02** was issued to ASARCO on March 23, 1994, to upgrade the existing sulfuric acid plant by converting it from a double absorption sulfuric acid plant to a single absorption (or single contact) plant. The project consisted of modifying the service of the No. 2A gas-to-gas heat exchanger, ducting the sulfur dioxide (SO₂) gas stream through the No. 3 heat exchanger, and adding cesium-promoted catalyst for certain beds of the acid plant converter.

The use of a single contact sulfuric acid plant instead of a double absorption plant at the East Helena plant was supported by the fact that the SO₂ gas strength resulting from the ore concentrate feed material being processed ranged between 2.5% and 3% by volume. ASARCO demonstrated that full double absorption couldn't (normally) be maintained when the gas strength dropped below 5% SO₂ without the use of a large heat exchanger train and additional heaters. The use of a large heat exchanger train and additional heaters results in a substantial cost in energy consumption for the acid plant. The project was expected to improve the capture of sulfur dioxide emissions and reduce emissions from the acid plant, reduce sulfur trioxide emissions and help prevent opacity exceedances, which sometimes occur during start up of the acid plant. The language used in the permit was as close as possible to the language contained in the SO₂ SIP for the East Helena area.

Permit **#2557-03** was issued to ASARCO on April 27, 1994. The permit alteration was issued to allow ASARCO to construct a new acid dust handling and conveying system to replace the existing process. The new system handles the acid dust from the sinter plant cyclone, sinter plant baghouse system, and sinter plant hot Cottrell. The system uses approximately 15,000 acfm of unused ventilation capacity from the CSHB. The increased ventilation capacity was gained by changing the louvers on the existing fans and increasing the amperage of the fans.

The system created a decrease in fugitive particulate and lead emissions. Emission decreases came from the abandonment of the 130-ton acid dust bin and baghouse (17P), the acid dust handling building (17V), including the zigzag blender, and the acid dust incline conveyor and drop point into an open-top gondola

railcar (17Va). A condition requiring ASARCO to discharge emissions from the surge bin baghouse, Dustmaster, and Agglomeration building ventilation through the CSHB and discharged through the CSHB baghouses and stack was added. The opacity limit on the D & L stack was added to the permit as a permit condition. The baghouse on the D & L stack had been permitted. The D & L stack is subject to 40% opacity since it was constructed prior to 1968 and has not been altered since it was installed. The particulate emission limit for the CSHB stack was increased by 0.98 lb/hr to the new PM stack limit of 20.810 lb/hr. The Department also included a requirement that the Agglomerator Building not have openings in excess of 14 square feet. The 14 square feet does not include the man doors, since they will normally be closed. The 14 square feet was calculated as four louvered vents, measuring 22" x 22".

Permit #2557-04 was issued to ASARCO on June 6, 1994. The permit alteration was issued to construct and operate a new Dross reverberatory furnace, which began operation in 1995. The furnace is capable of handling 150 tons per day of dross. Typically, however, 3.5 tons per hour (84 tons per day) of dross is fed to the dross reverberatory furnace. The feed is approximately 70 % lead on average. The new Dross reverberatory furnace has two natural gas burners in the endwall. Each burner is rated at 9 million BTU/hr. The burners are fired approximately 6 hours per shift.

Permit Alteration #2557-05 was issued on January 16, 1996, to allow ASARCO to construct additional equipment and controls. The equipment was added to the facility to meet the requirements of the lead SIP for the East Helena nonattainment area.

A Dross plant baghouse (225,000 acfm) and a 200-foot stack were constructed to control emissions from the Dross plant. Also included in this alteration was: the construction of ducting to vent the sinter storage baghouse to the Dross Plant Stack; the construction of charge car enclosures on the top of each blast furnace and improved ventilation to the Blast Furnace Feed Floor; the installation of two lead bullion water granulating units (one granulator will be constructed and installed for each blast furnace); the installation of an enclosed lead bullion conveying system to transport the solid lead flakes from the granulator to the rotary melters; and the installation of an outdoor lead bullion bunker for storage of the lead flakes if they cannot be sent to the rotary melters.

Permit #2557-05 also included the installation of two rotary furnaces (melters), which use natural gas as fuel. The rotary melters will be used to remelt the solid lead flakes as the first step in the drossing process. The rotary melters will replace Dross kettles #1 and #3. The Dross kettles were no longer be needed since some of the separation occurred in the rotary melters. The rotary melters were located in the general area of kettles #1 and #3. The use of the melters was intended to reduce emissions since the rotary melters will more accurately control the temperature of the re-melting, and the fugitive kettle emissions will no longer be generated. ASARCO continued to operate Dross kettles #2, #4, and #5, renumbered as #1, #2, and #3, respectively.

Emissions generated from the burning of natural gas to heat kettles #1, #2, and #3 were vented to combustion ventilation ducts. The ducts run to the roof area and emissions are collected by the ductwork providing general ventilation to the Dross Building. Each kettle has a hood which is designed and operated to provide ventilation at all times that the kettle is in use, including during the following activities: drossing (black skimming), pumping of molten lead, adding of fluxes, and stirring of fluxes. The remaining construction that took place enclosed and ventilated the Dross building. ASARCO also installed ducting to vent the Dross reverberatory furnace plenum to the Dross plant baghouse.

As part of the change of exhaust point of the plenum controlling emissions from the Dross reverberatory furnace, the New Source Performance Standards (NSPS) requirements will no longer apply to the blast furnace baghouse stack. The NSPS requirements are based on the process equipment. Since the process equipment triggering NSPS requirements will now exhaust through the Dross plant baghouse, the NSPS standards will not apply to the blast furnace baghouse stack. However, the COMS requirements remained

in place on the blast furnace baghouse stack even after the emissions from the plenum are transferred to the Dross plant stack. Permit #2557-05 also established pounds-per-hour limits on the blast furnace baghouse stack and the Dross plant stack for particulate and lead. An emission limit for SO₂ has also been established for the Dross plant stack.

Permit #2557-06 was issued on March 13, 1996, to allow ASARCO to construct a blast furnace baghouse dust handling system. The construction of the system is required by the East Helena lead SIP and will significantly reduce particulate and lead emissions from the handling, storing and charging of blast furnace baghouse dust. ASARCO constructed an enclosure over the blast furnace baghouse dust unloading and reclaiming area. The enclosure covered the baghouse dust unloading area and concrete storage bunker, as well as the new dense-phase pneumatic dust handling system. Ventilation at various emission points and general building ventilation was provided by a (new) blast furnace baghouse dust cleanout baghouse. The baghouse will be a pulse-jet design with a nominal flow rate of 45,500 acfm. The exhaust from this baghouse will be routed to the blast furnace baghouse stack.

A dense-phase pneumatic dust handling system was installed as the primary method for conveying the blast furnace baghouse dust. The new system will use front-end loaders to remove the baghouse dust from the baghouse cellar and dump the material through a grizzly. The oversized material removed by the grizzly is returned to the smelting process. The fines pass through the grizzly and into a hopper. A screw conveyor at the bottom of the hopper transfers the dust to a bucket elevator, which delivers the material through a controlled diverter valve to either a delumper or the concrete storage bunker. The fines that pass through the delumper discharge to another controlled diverter valve and into one of two enclosed dense-phase pneumatic conveying vessels. The material from these vessels is pneumatically transferred through another diverter valve to either a 12-ton capacity railcar loadout hopper or a 250-ton capacity blast furnace baghouse dust storage silo.

Emissions from the railcar loadout hopper will be controlled by a pulse-jet baghouse with a nominal flow rate of 3,500 acfm. Discharges from this baghouse are vented to atmosphere. Emissions from the blast furnace baghouse dust storage silo are controlled with a pulse-jet baghouse with a nominal flow rate of 2,500 acfm. Discharge from the baghouse dust storage silo baghouse along with the discharge from the Portland cement silo baghouse, discussed below, are routed to the Dross Plant stack.

Baghouse dust scheduled to be charged back to the blast furnace is pneumatically conveyed (dilute-phase) from the blast furnace baghouse dust storage silo, along with Portland cement, to a 6-ton capacity agglomerator charge hopper. The Portland cement is stored in a 50-ton capacity storage silo with a pulse-jet baghouse (nominal flow rate 1,400 acfm) for particulate control. The agglomerator charge hopper will also be fitted with a pulse-jet baghouse (nominal flow rate 1,400 acfm). The mixture from the agglomerator charge hopper is gravity fed into one of two agglomerators where it is blended with water prior to being transferred to the blast furnace charge car.

Emissions from the charge hopper baghouse, as well as from local ventilation to be provided at the inlet to the agglomerators, will be routed to the sinter storage baghouse. ASARCO discontinued the use of the 47 feeder charging bins after installation of the blast furnace baghouse dust charging system. ASARCO may still transport and load blast furnace baghouse dust into railcars with front-end loaders. The reclamation of blast furnace baghouse dust is subject to the limitations contained in the lead SIP.

This permit also re-establishes the opacity limit for the sinter D&L stack at 40%. The Department has since determined that the alterations performed on the sinter plant, completed in 1978, were not extensive enough to warrant a change to the opacity limitation.

Permit #2557-07 was issued May 29, 1996. The permit allows the construction of a lead granulation system within the dross plant building and allows ASARCO to make changes to the process of handling molten lead contained in Permit #2557-06. The changes are necessary due to design problems with the previously proposed granulation system. The previous design called for the use of a lead granulation system located at the blast furnace tapping floor, a conveying system, and two rotary melters. This equipment will no longer be installed. ASARCO's current design will continue to use lead pots to collect and transfer molten lead, but change the process from pouring the molten lead into the kettles to direct charging in most cases. The molten lead will either be directly charged to the dross reverberatory furnace or granulated in a lead granulation system constructed in the dross plant building. The dross kettles will no longer be used to receive furnace lead. ASARCO anticipates directly charging between 50% and 70% of the molten lead into the dross reverberatory furnace. The remaining molten lead will be sent to the granulation system.

Once granulated, the lead is either sent to a hopper or a storage bunker. The lead sent to the storage bunker is transferred to the hopper by a front-end loader, when needed. From the hopper, the granulated lead will be conveyed to the dross reverberatory furnace. With the molten furnace lead being charged directly to the dross reverberatory furnace, the molten furnace lead will no longer be processed through the dross plant receiving kettles. The dross plant receiving kettles will now be used to receive lead tapped from the dross reverberatory furnace. References to the lead granulation system only being operated when the dross reverberatory furnace is not operational were removed since the granulator was to be used on a regular basis regardless of the status of the reverberatory furnace.

Permit #2557-08 was issued on January 3, 1997, to allow ASARCO to use the existing 130-ton acid dust bin and associated baghouse. Permit #2557-06 required this equipment and the acid dust bin building to be abandoned once the new acid dust handling system was constructed. During the construction and start-up of the new system, ASARCO experienced problems with plugging. A system review indicated that the dust from the hot Cottrell was electrically charged and caused plugs in the system.

ASARCO requested the ability to use the existing 130-ton acid dust bin as an accumulation point for the sinter baghouse dust and hot Cottrell dust. The 130-ton acid dust bin is controlled by the acid dust bin baghouse. The baghouse exhaust is vented to the inlet of the sinter plant baghouse. This change will result in the emissions being controlled by two baghouses, in series, prior to discharge to atmosphere. Due to the low volume of airflow from the 130-ton acid dust bin baghouse, the emissions will not affect actual or allowable emission rates from the sinter plant stack.

Permit #2557-09 was issued on April 5, 1998, to allow a change in operational requirements of the blast furnace baghouse dust handling system. Since the installation of this system, ASARCO had experienced problems with the baghouse dust agglomerator. Once wetted, the dust was extremely difficult to remove from the agglomerator. Agglomeration of the material is ASARCO's preferred method of preparing the material for reintroduction to the blast furnace; however, ASARCO had not been able to operate this unit satisfactorily. The modification allowed ASARCO to bypass the agglomerator and load the dust directly to the charge car as long as the baghouse ventilation was redirected from the agglomerator opening to the charge car opening. The operational change did not result in a change in actual or allowable emissions from the system.

Permit #2557-09 also allowed ASARCO to redirect the emissions from the speiss granulating pit. At the time of the permitting action, these emissions were routed to the Dross Plant Baghouse. With the granulating pit emissions directed to this baghouse, ASARCO experienced blinding of the bags, unacceptably high pressure drops across the baghouse and significantly decreased bag life. ASARCO requested that they be allowed to use the blast furnace baghouse (BFBH) to control this source, instead of the dross plant baghouse. The granulating pit previously had been controlled with the BFBH without incident. Corresponding changes to the language in the lead SIP were adopted by the Board of Environmental Review on August 28, 1998, to allow the change in baghouse operations.

Permit **#2557-10** was issued on August 3, 2000, for the installation of a new High Efficiency Reverse Osmosis (HERO) water treatment plant. ASARCO needed the HERO plant to be able to comply with lower discharge limits in their water quality permit, which becomes effective December 1, 2000. The HERO process consists of three steps: hardness removal in an ion exchange system; carbon dioxide removal in a forced air degassifier; and reverse osmosis operating at a pH between 9 and 11. The HERO process results in two discharge streams. The permeate (treated water) stream can be discharged or reused in the plant for “clean” water needs. The reject (concentrated brine) stream is reused in the smelter or converted to dry solids in a spray dryer for landfill disposal, or a combination of the two.

There are two air discharge points for the HERO plant: the degassifier vent and the spray dryer baghouse stack. In the degassifier, low-pressure air is blown counter-currently through two columns to strip CO₂ from the water following hardness removal. The air/CO₂ mixture along with dissolved gases, such as SO₂, are stripped and vented to atmosphere. The spray dryer converts reject water (at 6 to 12 % solids) into dry solids, which can be landfilled. The reject water is injected into a spray dryer through high-pressure nozzles and evaporated by high temperature air, which is heated by natural gas and blown into the spray dryer. The heated air and evaporated dry solids are pulled into the spray dryer baghouse, where the dry solids are collected by fabric filters and the “clean” air vented to atmosphere. The dry solids are collected in two hoppers at the bottom of the spray dryer baghouse.

Also, during this permitting action, the Department acted on two de minimis requests submitted by ASARCO. The first one involved the repackaging of off-spec photographic paper into smaller bales, so that the paper could be more efficiently loaded into the blast furnace. The second request dealt with pneumatic injection of filings (router dust) from the manufacturing of printed circuit boards. Instead of adding the filings to the blast furnace from the top, ASARCO proposed to inject this material into the smelt zone of the blast furnace through existing furnace tuyeres. The Department determined that these changes are de minimis, and thus did not require a preconstruction permit. However, this determination was included in this permitting action for recordkeeping purposes.

Permit **#2557-11** provides for the installation and use of a rotary furnace and thermal oxidation unit. The rotary furnace will enable ASARCO to recover the precious metals contained in the printed circuit board material (CBM). The rotary melter project consists of three main steps: the partial combustion and depolymerization of shredded CBM under starved air conditions in an indirect-fired rotary kiln; discharge of the partially melted CBM from the rotary kiln into a sealed water bath and, after quenching, transfer of the CBM residue to the blast furnace; incineration of the gases evolved by the depolymerization process in the kiln, in a thermal oxidation unit.

At the outlet of the kiln the melted CBM is quenched in a water bath, which also serves as an atmospheric seal. The VOC emissions are routed via ductwork to the thermal oxidation unit. There the VOCs are incinerated by temperatures above 1800°F. The emissions from the incinerator are cooled by the addition of outside air, and then routed to the blast furnace baghouse cleanout baghouse. After particle removal in the baghouse, the remaining emissions exhaust through the blast furnace baghouse stack.

The original operating permit (**OP2557-01**) was issued on April 5, 2002.

With correspondence dated June 27, 2002, ASARCO submitted a request for modification to Permit **#OP2557-01**.

ASARCO requested the change in the responsible official to Mr. Blaine Cox for the East Helena facility. In accordance with ARM 17.8.1225, the Department modified Permit **#OP2557-01** as an administrative amendment. In addition to the change of the responsible official, the Department removed the permit appendices associated with the SO₂ Control Plan Requirements, the Lead Plan Control Requirements, the Primary Lead MACT (including the Standards for Fugitive Dust Sources), and the ASARCO Baghouse I

and M Program. These appendices were removed to eliminate the possibility of having to modify the Title V permit if one of the above mentioned documents changed. Copies of those documents can be requested from the Department. Permit #OP2557-02 replaced Permit OP2557-01.

D. Current Permit Action

On September 25, 2003, the Department received a request from ASARCO for an administrative amendment of OP2557-02 to update Section V.B.3 of the General Conditions incorporating changes to federal Title V rules 40 CFR 70.6(c)(5)(iii)(B) and 70.6(c)(5)(iii)(C) (to be incorporated into Montana's Title V rules at ARM 17.8.1213) regarding Title V annual compliance certifications. Operating Permit **OP2557-03** replaces OP2557-02.

E. Taking and Damaging Analysis

HB 311, the Montana Private Property Assessment Act, requires analysis of every proposed state agency administrative rule, policy, permit condition or permit denial, pertaining to an environmental matter, to determine whether the state action constitutes a taking or damaging of private real property that requires compensation under the Montana or U.S. Constitution. As part of issuing an operating permit, the Department is required to complete a Taking and Damaging Checklist. As required by 2-10-101 through 105, MCA, the Department has conducted a private property taking and damaging assessment and has determined there are no taking or damaging implications. The checklist was completed on October 15, 2003.

F. Compliance Designation

Ambient Air Quality Attainment Status

The East Helena area, in which the ASARCO plant is located, is classified nonattainment for lead and sulfur dioxide. A State Implementation Plan (SIP) for the primary SO₂ standards was adopted by the State in March of 1994, and later approved by EPA. A SIP for the secondary SO₂ standard is nearly developed. A lead SIP was adopted by the State in August of 1995. The lead SIP, and all subsequent revisions, has been submitted to EPA.

Permit (Preconstruction) Compliance

The ASARCO East Helena facility was last inspected on March 21, 2001, and determined to be in compliance with the terms and conditions of its preconstruction permit, as well as all stipulated limitations and conditions in place for SIP control plans.

Lead MACT Compliance

ASARCO is also subject to 40 CFR Part 63, Subpart TTT, the Lead MACT. The compliance date for MACT requirements was May 4, 2001. Lead MACT requirements have been incorporated into this operating permit, and ASARCO must submit a Baghouse Standard Operating Procedures (SOP) Manual and a Fugitive Dust SOP Manual, for approval, to the Department. ASARCO has adopted (Lead SIP) a Baghouse Inspection and Maintenance Plan that the facility currently operates under, and which may be partially or wholly subsumed by the Baghouse SOP required by the MACT. ASARCO also has a fugitive dust control strategy, with associated requirements, in place by virtue of the Lead SIP. The Lead MACT has made a provision that SIP fugitive dust control strategies may satisfy the requirements of the (MACT) Fugitive Dust SOP. Subsequently the Lead SIP fugitive dust control requirements are anticipated to be the foundation of the MACT Fugitive Dust SOP.

SECTION II SUMMARY OF EMISSION UNITS

A. Facility Process Description

ASARCO provided the following updated process description with the updated operating permit application received in April of 2000.

The East Helena smelter processes a wide variety of feed materials that are obtained from sources outside the facility. These materials include ore concentrates, crude ores, residues, by-products, fluxes, dusts, stags, and other metal bearing materials. Fluxing reagents such as limerock, silica and fuels such as coke and coke breeze are also critical components in the smelting process. The majority of the feed materials (estimated at 60 % of all receipts) are received in solid bottom railcars with a smaller percent being received in haul trucks or in enclosed containers. Fluxing reagents such as limerock and silica are included in the 60% feed material percent.

Sample Mill

Incoming feed material that is received into the East Helena smelter is carefully sampled to determine the metal composition and moisture content. Although most incoming feed materials are sampled prior to being processed, those feed materials requiring crushing are first sized to less than 1 inch in the crushing mill before sampling.

The sample mill determines the moisture content of the material and prepares a smaller sub-set of the original sample for laboratory analyses. Emissions from the handling of materials within the sample mill are controlled by the sample mill baghouse and exhausted through the sample mill baghouse stack (EPN: 1P).

Crushing Mill

A new crushing mill was built inside of the Concentrate Storage and Handling Building (CSHB). The new crushing mill is used to reduce the size of certain incoming feed materials and for obtaining representative samples of the materials. Materials scheduled for crushing may be temporarily stored in the old ore storage area or in the CSHB. The final crushing mill output reports inside of the CSHB where it is placed into haul trucks or railcars by means of either the overhead crane or by payloader. Fugitive emissions from the crushing mill operations are generated from the crushing mill product conveyor drops and crusher. A baghouse used to ventilate drop points on the conveyors and the crusher was installed to minimize emissions. This baghouse discharges into the CSHB where the exhaust air is drawn into the main CSHB baghouse inlets. The emissions from the CSHB baghouses exhaust to the CSHB stack.

Laboratory

The laboratory analyzes the incoming feed material samples received from the sample mill. The gold and silver content of the samples is determined by fire assay, while determinations for other metal parameters are by wet chemistry or x-ray diffraction. Emissions from the laboratory are exhausted through the laboratory assay stacks (EPN: 2P).

Thawhouse

Feed materials and fuels such as coke contain appreciable amounts of water that will freeze in sub-freezing temperatures. When feed materials are frozen, unloading of these materials is impossible. Feed materials, typically contained in solid bottom railcars, are warmed in the gas-fired thawhouse to soften the material. The thawhouse has the capacity of holding 14 railcars. Fugitive emissions released from the thawhouse are represented as EPN:28V.

High Grade Building Dumping Area

A small percentage of feed materials received at the East Helena smelter arrives in sealed containers such as supersacks, boxes, and drums. Most all of the material handling steps, including the unloading, weighing, and reclaiming of the feed material in these sealed containers, is performed in the high grade building area. Fugitive emissions from operations at the high grade building dumping area are represented as EPN:4V.

Hopto Unloading and Blast Furnace Dust Reclaiming Area

Metal bearing slags, select crude ores, and other by-products are unloaded from railcars using a "hopto" backhoe and dumped into bins located in the hopto unloading and blast furnace dust reclaiming area. The Lead SIP prohibited the unloading of dust by the hopto.

Dust from the blast furnace is removed from the blast furnace baghouse using front-end loaders. Depending upon the cadmium concentration in the blast furnace baghouse dust, it is either transferred to the blast furnace charge area for recycling or is shipped off site.

Under the Lead SIP, a pneumatic dust handling system was constructed to supplement the existing blast furnace baghouse dust reclaiming procedure. Depending upon the cadmium concentration, the dust is either pneumatically transferred to a blast furnace baghouse storage silo for recycling in the blast furnace, to a railcar loadout hopper, or to a discharge chute in the building. The dust transported to the discharge chute is placed into super sacs and transported off site. The railcar loadout area, if constructed and operated, will consist of a totally enclosed railcar loadout hopper and cement-type enclosed railcars, both ventilated using a new railcar loadout baghouse (EPN:23P). Fugitive emissions from the hopto unloading and blast furnace dust reclaiming area are represented by EPN: 2V.

Old Ore Storage Yard

The old ore storage yard is used to unload, store, and reclaim certain fluxes, fuels, by-products, slags, and dusts used in the smelting process. Limerock and other silica-based fluxes are delivered by haul trucks to this area for unloading and storage. Surplus coke is occasionally transported by haul truck from the coke unloading and storage area to the old ore storage yard for temporary holding. Metal bearing by-products (skims and other by-products) that are unloaded in the hopto unloading and blast furnace dust reclaiming area can be stored in the old ore storage yard. Incoming shipments of by-product slag are also unloaded from boxcars in the old ore storage yard. Blast furnace baghouse dust may be transported from the hopto unloading and blast furnace dust reclaiming area to the old ore storage yard for temporary holding. All materials stored in the old ore storage area are reclaimed by front-end loader. Fugitive emissions from the old ore storage yard are represented as EPN: 3V. In order to comply with RCRA material storage requirements, Asarco is installing two new covered structures in the Old Ore Storage Yard. These structures will be used to store feed materials that are presently stored outside. By handling these feed materials inside of the enclosed structures, Asarco will realize a reduction in fugitive emissions leaving the facility. Asarco has not taken emission reduction credit for the handling of materials inside of an enclosed structure.

Concentrate Storage and Handling Building

All incoming feed materials that are received into the East Helena smelter (except those materials that are handled in the old ore storage yard, hopto unloading and blast furnace dust reclaiming area, or high grade building area) are handled in the Concentrate Storage and Handling Building (CSHB). This building is designed to enclose and ventilate the unloading, storage, mixing, blending, and conveying operations of the

great majority of material that is to be smelted. The unloading of feed material from solid bottom railcars is performed inside the building using two overhead cranes. Feed materials are placed into open storage bins within the CSHB for temporary holding. The CSHB is equipped with seven truck doors that allow haul trucks to directly transfer feed material into the CSHB. Feed material is transferred by overhead crane from the storage bins to twelve belt feeder bins. The belt feeder bins are designed to proportion the feed material onto a main feed belt. The main feed belt transfers the feed mixture to the sinter belt through a conveyor gallery.

The CSHB ventilation system is designed so that the building remains under negative pressure even when several of the truck doors are open. Emissions generated inside the CSHB, including the feeder area, the new crushing mill baghouse, and the acid dust agglomerator building (see following discussion), are controlled by three baghouses that discharge to the CSHB stack (EPN: 6P). The Sinter Plant Ventilation System (SPVS) baghouse (see following discussion) also discharges to the CSHB stack.

Sinter Plant

The charge to the sinter plant is made up of carefully measured amounts of feed material from each of the twelve feeders that are located in the CSHB. The feed material is conveyed by belt lines from the CSHB to a hammermill located in the sinter plant building, where it is thoroughly pulverized. The charge is then mixed with return sinter, a previously roasted and sized material from which most of the sulfur has been removed.

The purpose of sintering is to reduce the sulfur content of the feed material to approximately 1.5% and to produce a porous agglomerated material, called sinter, which is visibly similar to volcanic lava and suitable for blast furnace smelting. Sintering consists of roasting the mixture of moistened feedstocks, flux, and coke breeze on a bed of traveling grates - a belt loop of revolving cast steel pallet sections. The mixture is ignited and burned under forced updraft in the enclosed and ventilated sinter machine. The machine produces final sinter, which is crushed and segregated before being conveyed to the sinter storage hopper or the sinter storage building.

Gases produced in the sintering process contain high levels of particulate and approximately 2%-3% sulfur dioxide. These gases, also referred to as process gases, must be cleaned in an elaborate system before being directed into the acid plant. First, process gases are drawn through an electrostatic precipitator (ESP), or hot cottrell, that uses high-voltage electricity to remove 99% of the dust contained in the process gases. Fugitive emissions from the hot cottrell are represented by EPN: 7V. Next, the process gases pass through a scrubber tower. The scrubber tower contains two sets of open and packed water scrubbers which remove the final traces of particulates. Fugitive sulfur dioxide emissions from the scrubber tower are represented by EPN: 27V. Finally, the process gases are routed through mist precipitators to remove any acid mist droplets and to produce an optically clear gas for the acid plant. Fugitive sulfur dioxide emissions from the mist precipitators are represented by EPN: 24V.

The sinter building has an extensive ventilation system that captures dusts and low levels of sulfur dioxide generated during the transferring of feed material, from the tail end of the sinter machine and from the crushing of sinter. The gases collected in this ventilation system are routed to the sinter plant baghouse for cleaning before being vented to the sinter plant stack (EPN: 7P). The particulate matter captured by the hot cottrell and sinter plant baghouse is conveyed to the acid dust handling facility.

Local exhaust ventilation in the sinter building is supplied by the sinter plant ventilation system (SPVS). This system captures dust emissions at numerous (18) locations within the sinter building. The gases collected by this ventilation system are routed to the SPVS baghouse for cleaning before being discharged to the CSHB stack (EPN: 6P).

The old crushing mill building operations were shutdown before October 1996. After that, building emissions from the sinter plant are captured by roof hoods and directed, on a continual basis, to the old crushing mill baghouses #1 and #2. These baghouses have been renamed to help avoid confusion. The old crushing mill #1 and #2 baghouses have been renamed the #7 and #8 sinter plant roof baghouses, respectively. The emissions from these baghouse stacks are represented as EPN: 3Pa and EPN: 4Pa. Any remaining fugitive emissions, which escape the sinter building, are represented as EPN: 6V.

Acid Plant

Process gases generated in the sinter operations that are cleaned by the electrostatic precipitators, wet scrubbers, and mist precipitators are directed to the acid plant. The gas stream is dried by direct contact with 93% sulfuric acid in a drying tower. The clean, cool, dry gas is then heated to 800°F or higher before entering the acid plant converter. At this temperature, the sulfur dioxide reacts with oxygen in the presence of vanadium and cesium-promoted catalyst to form sulfur trioxide.

In the process, the sulfur trioxide is removed from the converted gas by passing this gas, cooled to about 380°F, through an interstage absorbing tower to form 98% sulfuric acid. Because 98% acid freezes at 30°F, the acid is fed back through the drying tower and diluted to 93% strength prior to shipment. Emissions from the acid plant operations are vented to the acid plant stack (EPN: 8P).

The operations described above, specifically those procedures involving the pumping, transferring, and transporting of acid, take place in the acid pump tank building. Fugitive emissions of sulfur dioxide from the acid pump tank building are represented by EPN: 26V.

Acid Dust Handling

Dust collected by the hot cottrell, sinter plant cyclone, and sinter plant ventilation baghouse is currently conveyed to an enclosed 130-ton storage bin located in the acid dust handling building. This bin is ventilated by a small baghouse that discharges to the sinter plant baghouse inlet (EPN: 7P).

The old acid dust handling system was replaced with a pneumatic handling system. The new system pneumatically conveys acid dust to an agglomerator building connected to the CSHB. Within the agglomerator building, the dust is mixed, moistened, and conveyed to the CSHB prior to reprocessing. Any emissions generated within the agglomerator building are captured by the CSHB ventilation system. The system eliminates sources EPN: 17V, EPN: 17Va, and EPN: 17P.

Sinter Handling

Final sinter is conveyed on pan conveyors to the sinter storage hopper located in the blast furnace charge building. When the production of sinter outpaces its consumption by the blast furnace, sinter is transferred from the sinter charge hopper to the sinter storage building. Emissions generated in the sinter storage building are controlled by the sinter storage baghouse and vented to the dross plant baghouse stack. Under the Lead SIP, the discharge from the baghouse was rerouted to the dross plant stack (EPN: 21P) prior to January 1997, thereby eliminating EPN: 9P.

Sinter is removed from the sinter storage building by front-end loader (when the capacity of the sinter storage building is exceeded) and stored along the blast furnace flue or the Direct Smelt Building. Sinter is reclaimed by front-end loader, on an as-needed basis, and placed in the blast furnace charge car for smelting. Fugitive emissions generated from the transferring of sinter are represented as EPN: 8Vf. Sinter is usually stored inside the Direct Storage Building (DSB), but may be stored outside within the limits of the operating permit.

Direct Smelt Bins

Direct smelt materials are defined as materials that usually contain less than 2% sulfur and are compatible with charging directly to the blast furnace. Direct smelt materials can include high grade and by-product carbons, dusts, slags, and other feed materials that fit the direct smelt material definition.

Direct smelt materials are transported from the CSHB, old ore storage yard, high-grade area and hopper unloading and blast furnace dust reclaiming area to the direct smelt bins by use of haul trucks or front-end loaders. The direct smelt bins consist of bins under the High Line and bins located inside of the Direct Smelt Building. The Direct Smelt Building replaced the Old New Deal Building after it was destroyed by fire. A new concrete floor and bins were constructed inside of the building to keep direct smelt materials separate. No emission reduction credit was taken in the Lead SIP when calculating emissions from front-end loaders reclaiming materials inside of the direct smelt building. Front-end loaders reclaim direct charge materials from the bins and place them into the charge car. Fugitive emissions from the handling of direct smelt bin materials are represented as EPN: 8Vi.

Coke Unloading and Storage

Hopper-type railcars are used to transport coke to the blast furnace area. These hopper-type railcars are positioned on an elevated rail line over open bins where the bottom-dump hoppers are released. Coke drops into the open bins and is either transferred to the coke storage area or placed onto a screen for sizing. The larger pieces of coke that pass over the screen are placed onto a conveyor that feeds the coke hopper located in the charge floor building. Fugitive emissions from the coke unloading and storage area are represented as EPN: 29V.

Blast Furnace Charge Building

Feed material that is directed to the blast furnace for smelting is handled in the blast furnace charge building. Feed material handled in the blast furnace charge building is conveyed to the blast furnace using the blast furnace charge car.

Blast furnace feed material consists of sinter, coke, by-product dusts, direct smelt materials, filter cake, scrap iron, and general plant cleanup. Sinter and coke are typically loaded directly to the blast furnace charge car from enclosed hoppers. The only exception is when stockpiled sinter and coke are loaded from the storage area near the blast furnace to the charge car by front-end loader.

Under the Lead SIP, the 47 feeders were eliminated (EPN: 8Vk) and replaced with a pneumatic dust handling system prior to January 1997. This system pneumatically conveys blast furnace baghouse dust from the blast furnace dust cleanout area to an enclosed storage silo located adjacent to the blast furnace charge building. Dust from this silo and cement from the Portland cement storage silo can be conveyed to an enclosed charge hopper located inside the charge building. The combined blast furnace baghouse dust and/or Portland cement can be gravity fed from the charge hopper to one of two agglomerators where it can be blended and mixed with water prior to exiting into the blast furnace charge car. The dust and/or dust Portland cement combination can also be fed directly into the charge car, bypassing the agglomerators completely. When this occurs, ventilation on the agglomerator inlets must be redirected to the charge car to minimize fugitive emissions during the filling operation. Ventilation for the blast furnace baghouse dust and Portland cement storage silos are provided by two small baghouses that exhaust to the dross plant stack (EPN: 21P). Ventilation for the charge hopper is also provided by a small baghouse that exhausts into the interstorage baghouse. Ventilation to the agglomerators is provided by a ventilation fan that discharges into the sinter storage baghouse.

Finally, direct smelt materials, filter cakes, plant cleanup, and other by-product materials are loaded directly by front-end loaders to the charge car. Scrap iron is loaded to the charge car from a pan conveyor. Fugitive emissions from the handling of materials in the blast furnace charge building are represented as EPN: 8Vb.

Blast Furnace Feed Floor

The bottom-dump charge cars are hoisted up an inclined rail by cable from the blast furnace charge building to the blast furnace feed floor. The charge car is positioned on a transfer carrier at the top of the incline. The transfer carrier is connected to laterally moving cables that position the charge car over one of four sections of the blast furnace. The bottom doors of the charge car are pneumatically actuated to release the furnace charge to the blast furnace. Emissions from charging of the blast furnace are captured by the ventilation provided to the blast furnace thimble floor.

Under the Lead SIP, the volume of air provided to the blast furnace thimble floor was increased and a ventilated charge car enclosure was built prior to January 1997 to better capture blast furnace feed floor emissions. Blast furnace feed floor emissions are routed to the blast furnace baghouse, which is vented to the blast furnace baghouse stack. Fugitive emissions from the blast furnace feed floor are represented as EPN: 9V. Blast furnace baghouse stack emissions are represented as EPN: 16P.

Blast Furnace Tapping Platform

The blast furnace is a water jacketed, rectangular column in which the charge is smelted. Smelting occurs when oxygen-enriched air is injected into the bottom of the blast furnace through a number of pipe-like openings called tuyeres. The blast air burns the coke, providing heat to melt the charge, and provides an agent to reduce the lead oxide formed in the sinter process. As the molten lead flows through the charge, it absorbs other metals such as gold, silver, copper, and relatively small amounts of antimony, bismuth, and tin. The molten furnace lead and molten slag (comprised primarily of silica, iron, lime, and zinc) are tapped continuously from the bottom of the furnace.

The molten mixture flows by gravity into a primary settler where the furnace lead separates from the slag. Since the furnace lead has a higher density than the slag, it will descend to the bottom of the primary settler. Furnace lead is then forced from the primary settler through a gooseneck siphon into a 5-ton lead pot. Slag, being less dense than furnace lead, will float on top of the liquid in the primary settler. The slag will overflow into a secondary settler or jitney. Additional separation of the furnace lead and slag will occur in the jitney. The slag flows from the jitney into a slag pan, where it is allowed to air cool. The molten furnace lead is transported in 10-ton pots to the dross plant for further treatment.

Local ventilation is provided to the primary settler, lead pot tapping area, and the slag pan tapping area. The emissions are controlled by the blast furnace baghouse. Fugitive emissions from the blast furnace tapping platform are represented as EPN: 10V. Blast furnace baghouse stack emissions are represented as EPN: 16P.

Slag Handling Facility and Slag Dumping

Slag pans are transferred from the blast furnace tapping platform to the slag handling area where they are allowed to cool and harden. The solid slag is dumped from the pans at the slag handling facility. The slag is then transported by front-end loader to the slag pile dumping area. Fugitive emissions from the slag handling area and slag pile dumping are represented as EPN: 11V and EPN: 12V, respectively.

Breaking Floor Building

The breaking floor building receives cooled settlers and jitneys from the blast furnace tapping platform. The outer casings of the settlers and jitneys are disassembled and removed within the breaking floor building. The large, solid material that remains is broken by a large jackhammer. Cast iron that is too large to charge to the blast furnace is also broken in the breaking floor. Materials broken in the breaking floor building are returned to the blast furnace for reprocessing. Fugitive emissions from the breaking floor building are represented by EPN: 8Va.

Reagent Bins

Wood chips and coke breeze are stored in the reagent bins adjacent to the dross plant. Wood chips are transported directly to the reagent bins by haul truck. Coke breeze can be either transported directly to the direct reagent bins by haul trucks, front-end loaders, or by hopper-bottom railcars. Wood chips, coke breeze, and soda ash are reclaimed by front-end loader. Fugitive emissions from the handling of these materials in the reagent bins are represented as EPN: 30V.

Tetrahedrite Drier

Tetrahedrite concentrates contain an appreciable amount of moisture that must be removed if the concentrate is direct charged to the dross plant. Tetrahedrite concentrates are dried in the tetrahedrite drying building to reduce the moisture content to an acceptable level. Emissions from the charging of the dryer are represented as EPN: 16V. Emissions from the dryer are controlled and exhausted through the tetrahedrite dryer baghouse stack (EPN: 10). The Tetrahedrite drier, building, and associated baghouse stack are not currently in use.

Dross Plant

Molten blast bullion is transferred to the dross plant in 10-ton lead pots. The molten lead is poured into a receiving kettle using an overhead crane. The lead bullion is cooled, causing the copper bearing material that is soluble at high temperatures to precipitate out of the bullion and float to the surface of the kettle. This material is commonly referred to as dross. The dross is skimmed off into skips with a clamshell bucket connected to an overhead crane. The dross is transported by the overhead crane and charged into the dross reverberatory furnace. Once the dross is removed from the surface of the lead bullion, the remaining lead bullion is transferred by a large ladle into one of two finishing kettles. The lead bullion may receive further treatment in these kettles, with materials such as sawdust or sulfur, to form additional dross. These drosses are skimmed off the surface of the lead bullion and treated in the dross reverberatory furnace. Once drossing is complete, the remaining lead bullion is pumped into 5 or 10-ton molds. The cooled lead bullion is shipped to a lead refinery for further processing.

The drosses are treated in the reverberatory furnace, remelted, and separated into three components: matte, speiss, and lead. Matte (copper sulfide) and speiss (copper antimony and arsenide) are tapped jointly from the furnace into an air-mist granulator, then shipped to a copper smelter. The lead is returned to the finishing kettles to be treated.

Ventilation is provided to control emissions from the dross kettles process gases, dross reverberatory furnace (including charging and tapping operations), and dross building. The dross building has been enclosed to contain dross plant emissions. All these emissions are vented to the dross plant baghouse and exhaust through the dross plant stack (EPN: 21P). Fugitive emissions from the dross plant are represented as EPN: 19P.

Speiss/Matte Handling Facility

Speiss and matte are tapped from the dross reverberatory furnace into an air-mist granulator bunker to create a speiss/matte composite. Front-end loaders remove the speiss/matte composite from the bunker and transport it to a bin in the speiss/matte handling facility adjacent to the dross plant. The composite is loaded into railcars for shipment to a copper smelter. Fugitive emissions from the speiss/matte handling facility are represented as EPN: 15V. The speiss/matte granulating pit ventilation was removed from the dross plant baghouse system and added to the blast furnace baghouse system. Emissions from the speiss/matte granulating pit are represented as EPN: 16P.

Blast Furnace Baghouse Cleanout

Blast furnace baghouse dust is removed from the baghouse cellars once every 4 to 5 weeks and placed into a dust conveying system using small front-end loaders. The blast furnace baghouse dust is either shipped off site or recycled through the blast furnace.

Under the Lead SIP, the blast furnace baghouse dust cleanout activities take place within a new blast furnace baghouse dust unloading and reclaiming enclosure. The new enclosure was in place before January 1997. Blast furnace baghouse dust is removed from the blast furnace baghouse dust cellars using small front-end loaders. The loaders dump the dust into a receiving hopper and delumper where it can be properly sized. Depending upon the cadmium concentration, the dust is either pneumatically transferred to a blast furnace baghouse storage silo for recycling in the blast furnace, to a railcar loadout hopper, or to a discharge chute in the building. The dust transported to the discharge chute is placed into super sacs and transported off site. Subject to the limitations in the lead SIP, blast furnace baghouse dust may also be handled by front-end loaders.

The blast furnace baghouse dust cleanout area is totally enclosed and ventilated. Fugitive emissions for the blast furnace baghouse dust cleanout area are represented as EPN: 18V. The ventilation air is directed to the blast furnace (baghouse dust cleanout) baghouse, which exhausts to the blast furnace baghouse stack (EPN: 16P).

Blast Furnace Flue Cleanout

The blast furnace flue is cleaned (as needed) by front-end loaders. Blast furnace flue dust is either transported to the direct charge bins adjacent to the blast furnace, stored outside next to the flue, or placed inside of the CSHB. Emissions from the blast furnace flue cleanout activity are represented as EPN: 19V. In order to meet RCRA material storage requirements, Asarco will construct a structure near the blast furnace baghouse flue to store baghouse flue dust. Dust that is presently stored outside will be stored inside of this structure in the future.

Paved Roads and Paved Areas

The East Helena smelter is located on approximately 141 acres of which approximately 70% is paved with asphalt or concrete. Paved roads are swept and water sprayed on a regular basis to meet a 5% opacity limitation. A minimum of two sweepers (roadway or vacuum sweepers) is maintained for use in the smelter. Emissions from paved roads and paved areas are represented as EPN: 3A.

Unpaved Roads and Unpaved Areas

Unpaved roads and unpaved areas are treated with chemical dust suppressants in order to meet a 5% opacity limitation. Emissions from unpaved roads and unpaved areas are represented as EPN: 2A.

Wind Erosion

Wind erosion occurs in areas throughout the plant that are unpaved or on piles that are stored in open areas. Dust suppressants and water surfactants are used to minimize the amount of wind erosion from these areas. Fugitive emissions from wind erosion are represented as EPN: 1A.

B. Emission Units and Pollution Control Device Identification

The emission units regulated by this permit are the following (ARM 17.8.1211)

Emission Unit ID	EU Description	Pollution Control Device/Practice (Emission Point)	Stack	Asarco EPN
EU001	Sample Mill	Sample Mill Baghouse	Sample Mill Baghouse Stack	1P
EU002	Laboratory	None	Lab Assay Stack	2P
EU003	Thaw House	None – Fugitive Emissions	None	28V
EU004	High Grade Building Dumping Area	None – Fugitive Emissions	None	4V
EU005	Rail Car Loadout Hopper	Rail Car Loadout Baghouse	Rail Car Loadout Baghouse Stack	23P
EU006	Old Ore Storage Yard	None – Fugitive Emissions	None	3V
EU007	Concentrate Storage & Handling Building (CSHB)	CSHB Baghouses (North, South, Feeder Room)	CSHB Stack	6P
EU008	CSHB Stack	-----	-----	6P
EU009	Sinter Plant Building	None – Fugitive Emissions	None	6V
EU010	Sinter Plant Ventilation System (SPVS)	Sinter Plant Ventilation System (SPVS) Baghouse	CSHB Stack	6P
EU011	Sinter Plant Roof	#7 Sinter Plant Roof Baghouse	#7 Sinter Plant Roof Baghouse Stack	3Pa
EU012	#7 Sinter Plant Roof Baghouse Stack	-----	-----	3Pa
EU013	Sinter Plant Roof	#8 Sinter Plant Roof Baghouse	#8 Sinter Plant Roof Baghouse Stack	4Pa
EU014	#8 Sinter Plant Roof Baghouse Stack	-----	-----	4Pa
EU015	Sinter Plant Strong Gas	Sinter Plant ESP (Hot Cotrell) Penthouse	None (8P)	7V
EU016	Sinter Plant Strong Gas	Acid Plant Scrubber Towers	None (8P)	27V
EU017	Sinter Plant Strong Gas	Mist Precipitator and Building	None (8P)	24V
EU018	Sinter Plant Strong Gas	Acid Pump Tank and Building	None (8P)	26V
EU019	Sinter Plant Strong Gas	Acid Plant (Single Contact)	Acid Plant Stack	8P
EU020	Acid Plant Stack	-----	-----	8P
EU021	Sinter Plant Weak (Tail) Gas	Sinter Plant Cyclone	None (7P)	7P
EU022	Sinter Plant Weak (Tail) Gas	Sinter Plant (D&L) Baghouse	Sinter Plant (D&L) Stack	7P
EU023	Sinter Plant Stack	-----	-----	7P
EU024	Sinter Storage Building	Sinter Storage Building Baghouse	Dross Plant Stack	21P
EU025	Acid Dust Bin	Acid Dust Bin Baghouse (17P)	Sinter Plant Stack	7P

Emission Unit ID	EU Description	Pollution Control Device/Practice (Emission Point)	Stack	Asarco EPN
EU026	Acid Dust Bin Building	None – Fugitive Emissions	None	17V
EU027	Agglomerator Bldg.	CSHB Ventilation System	CSHB Stack	6P
EU028	Outdoor Sinter Storage & Sinter Handling	None – Fugitive Emissions	None	8Vf
EU029	Direct Smelt Bins	None – Fugitive Emissions	None	8Vi
EU030	Coke Handling	None – Fugitive Emissions	None	29V
EU031	Blast Furnace Charge Building	None – Fugitive Emissions	None	8Vb
EU032	Blast Furnace Charge Building Portland Cement Silo	Portland Cement Silo Baghouse	Dross Plant Baghouse Stack	21P
EU033	Blast Furnace Charge Building BF Baghouse Dust Silo	Blast Furnace (BF) Baghouse Dust Silo Baghouse	Dross Plant Baghouse Stack	21P
EU034	Blast Furnace Charge Building Charge Hopper	Charge Hopper Baghouse (vents into the Sinter Storage Baghouse)	Dross Plant Baghouse Stack	21P
EU035	Blast Furnace Charge Building Agglomerator	Ventilation Fan exhausting to the Sinter Storage Baghouse	Dross Plant Baghouse Stack	21P
EU037	Blast Furnace Feed Floor	Blast Furnace Baghouse	Blast Furnace Baghouse Stack	16P
EU038	Blast Furnace Feed Floor Fugitives	None – Fugitive Emissions	None	9V
EU039	Blast Furnace #1	Blast Furnace Baghouse	Blast Furnace Baghouse Stack	16P
EU040	Blast Furnace #3	Blast Furnace Baghouse	Blast Furnace Baghouse Stack	16P
EU041	Blast Furnace Tapping Platform	Blast Furnace Baghouse	Blast Furnace Baghouse Stack	16P
EU042	Blast Furnace Tapping Fugitives	None – Fugitive Emissions	None	10V
EU043	Slag Handling Area Fugitive Emissions	None – Fugitive Emissions	None	11V
EU044	Slag Pile Dumping Area Fugitive Emissions	None – Fugitive Emissions	None	12V
EU045	Blast Furnace Stack	-----	-----	16P
EU046	Blast Furnace Baghouse Dust Cleanout Area	Blast Furnace Baghouse Dust Cleanout Baghouse	Blast Furnace Baghouse Stack	16P
EU047	Blast Furnace Flue Cleanout	None – Fugitive Emissions	None	19V
EU048	Hopto Unloading and Blast Furnace Baghouse Dust Reclaiming	None – Fugitive Emissions	None	2V
EU049	Breaking Floor Building	None – Fugitive Emissions	None	8Va
EU050	Reagent Bin Material Handling	None – Fugitive Emissions	None	30V
EU051	Tetrahedrite Drier	Tetrahedrite Drier Baghouse	Tetrahedrite Drier Baghouse Stack	10P
EU052	Tetrahedrite Building	None – Fugitive Emissions	None	16V

Emission Unit ID	EU Description	Pollution Control Device/Practice (Emission Point)	Stack	Asarco EPN
EU053	Dross Plant Kettle #1 Combustion Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU054	Dross Plant Kettle #2 Combustion Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU055	Dross Plant Kettle #3 Combustion Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU056	Dross Plant Kettle #4 Combustion Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU058	Dross Plant Reverberatory Furnace Combustion Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU059	Dross Plant Kettle #1 Process Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU060	Dross Plant Kettle #2 Process Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU061	Dross Plant Kettle #3 Process Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU062	Dross Plant Kettle #4 Process Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU063	Dross Plant #4 Launder Process Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU064	Dross Plant Reverberatory Furnace Process Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU065	Dross Plant Reverberatory Furnace Charge Hole	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU066	Dross Plant Speiss/Matte Tap Process Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU067	Dross Plant Speiss/Matte Launder Process Emissions	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU068	Dross Plant Building	Dross Plant Baghouse	Dross Plant Baghouse Stack	21P
EU069	Dross Plant Baghouse	N/A	Dross Plant Baghouse Stack	21P
EU070	Dross Plant (Baghouse) Stack	N/A	Dross Plant Baghouse Stack	21P
EU071	Speiss & Matte Granulating Pit	Blast Furnace Baghouse	Blast Furnace Baghouse Stack	16P
EU072	Speiss & Matte Handling	None – Fugitive Emissions	None	15V
EU073	Paved Plant Areas and Roads within ASARCO	Sweeping, Vacuuming, & Washing	None	3A
EU074	Unpaved Plant Areas and Roads within ASARCO	Dust Suppressants, Water Application	None	2A
EU075	Haul Trucks	Grating	None	
EU076	Wind Erosion	Dust Suppressants	None	1A
EU077	HERO Spray Dryer	HERO Spray Dryer Baghouse	HERO Spray Dryer Baghouse Stack	22P
EU078	HERO Spray Dry Solids (Dust) Storage Silo	HERO Bin Vent Baghouse HERO Spray Dryer Baghouse	HERO Spray Dryer Baghouse Stack	22P
EU079	HERO Load Out Ventilation Fan	HERO Dryer Baghouse	HERO Dryer Baghouse Stack	22P

Emission Unit ID	EU Description	Pollution Control Device/Practice (Emission Point)	Stack	Asarco EPN
EU080	HERO Degassifier Vents	None	None	
EU081	Printed Circuit Board Material Pyrolyzing (Rotary Melting Furnace)	Thermal Oxidizer (Acid Gas Incinerator)	Blast Furnace Baghouse Stack	16P
EU082	Thermal Oxidizer	Blast Furnace Baghouse Dust Cleanout Baghouse	Blast Furnace Baghouse Stack	16P
EU083	Gasoline Storage Tank(s)	Vapor Loss Control Device, Submerged Fill, or Pressure Tank	N/A	
EU084	East Helena Paved Road Dust Control Plan	Sweeping, Vacuuming, & Washing	None	

C. Categorically Insignificant Sources/Activities

Emission Unit ID	Description
IEU01	Soda Ash Bin
IEU02	Emergency Gasoline Generator for Sewer Treatment Plant
IEU03	Emergency Diesel Cooling Pump (200HP) Plant Water
IEU04	Emergency Diesel Cooling Pump (150HP) Blast Furnace Cooling
IEU05	2500-Gal Diesel Storage Tanks
IEU06	2500-Gal Diesel Storage Tanks
IEU07	75 Natural Gas Space Heaters and Hot Water Heaters less than 5MMBtu/hr Ea.
IEU08	Water Cooling Towers - Non contact cooling water

SECTION III PERMIT CONDITIONS

A. Emission Limits and Standards

The expansive nature of this facility's associated limitations and conditions, which include requirements from an SO₂ control plan, a Lead control plan, MACT standards, and requirements from permits, prohibits a comprehensive listing here. What is perhaps more appropriate for this document's purpose is a concise tabulation of the sources of the applicable requirements found in this operating permit. The following Standards of Performance, NAAQS Emission Control Plans, and the Montana Air Quality permit represent the bulk of the requirements placed in the operating permit.

- 40 CFR Part 60, Subpart R, Standards of Performance for Primary Lead Smelters.
- 40 CFR Part 63, Subpart TTT, National Emission Standards for Hazardous Air Pollutants for Primary Lead Smelting (Lead MACT). The MACT is provided in Appendix G of Permit #OP2557-01.
- Primary SO₂ NAAQS Emission Control Plan, BER Order dated March 18, 1994, which is comprised of Exhibit A and all of its appendices and attachments. The SO₂ control plan is provided in Appendix E of Permit #OP2557-01.
- The Lead NAAQS Emission Control Plan, BER Orders dated: August 4, 1995; April 12, 1996; June 21, 1996; August 28, 1998; and September 15, 2000, Exhibit A and all of its appendices and attachments. The Lead control plan is provided in Appendix F of Permit #OP2557-01.
- State of Montana Air Quality Permit # 2557-11, final on 9/17/2000.

The primary sources of emissions, whether particulate matter, lead, or sulfur oxides, are the CSHB and stack; the Sinter Machine with the Acid Plant Stack and the D&L Stack; the Blast Furnaces and the Blast Furnace Stack, and the Dross Plant and its stack.

The SO₂ SIP emission control plan sets SO₂ emission limits for the CSHB stack, the #7 and #8 Sinter Plant Roof stacks, and the Acid Plant stack. The limits for the Sinter and Blast Furnace stacks are set such that the Blast Furnace emission limit is based upon the current value of the Sinter Plant emissions. When Sinter emissions go up, the Blast Furnace limit is lower. Alternatively, when Sinter emissions go down, the Blast Furnace emission limit increases. These limits are described by equations in section III.B of the permit, and also in the Primary SO₂ NAAQS Emission Control Plan.

The lead emission limits are a result of the Lead NAAQS Emission Control Plan. PM emission limits are derived from the Air Quality permit (2557-11). The emission points of greatest significance at the ASARCO East Helena facility are summarized below with their current emission limitations.

Emission Point	SO ₂	Lead	PM	Opacity	Monitors
CSHB Stack	46.0 lb/hr	4.086 lb/hr	20.81 lb/hr	20%	
Sinter (D&L) Stack	60.27 tons/day	1.8176 lb/hr	Process Weight	40%	CEMS
Acid Plant Stack	620 ppm/6 hours 4.3 tons/day	0.0698 lb/hr	Process Weight	20%	CEMS
Blast Furnace Stack	29.64 tons/day & SO ₂ Bubble Equation	3.7145 lb/hr	25.150 lb/hr	20%	CEMS COMS
Dross Plant Stack	27.39 lb/hr	3.48 lb/hr	19.63 lb/hr	20%	COMS

The Lead MACT imposes a plant-wide emission limitation for lead, which is 500 grams of lead per megagram of lead metal produced. Section III.C of this permit identifies all of the emission units for which this limit applies. The expansive listing of EU's will not be included here.

The fugitive emissions at the ASARCO East Helena facility have received consideration in the lead SIP. The lead SIP imposes numerous monitoring, recordkeeping, and reporting requirements on fugitive dust sources, as well as defined limitations and operating restrictions. The lead MACT also imposes upon the facility the burden of developing a Fugitive Dust SOP, which may adopt the already established SIP requirements for controlling fugitives. Section III.D of this permit identifies all of the emission units for which the Fugitive SOP applies. The expansive listing of EU's will not be included here.

B. Monitoring Requirements

ARM 17.8.1212(1) requires that all monitoring and analysis procedures or test methods required under applicable requirements be contained in operating permits. In addition, when the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirements for testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor for all emission units. Furthermore, it does not require extensive testing or monitoring to assure compliance with the applicable requirements for emission units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. When compliance with the underlying applicable requirement for a insignificant emission unit is not threatened by lack of regular monitoring and when periodic testing or monitoring is not otherwise required by the applicable requirement, the status quo (**i.e., no monitoring**) will meet the requirements of ARM 17.8.1212(1). Therefore, the permit does not include monitoring for insignificant emission units.

The permit includes periodic monitoring or recordkeeping for each applicable requirement. The information obtained from the monitoring and recordkeeping will be used by the permittee to periodically certify compliance with the emission limits and standards. However, the Department may request additional testing to determine compliance with the emission limits and standards.

SO₂ SIP Bubbled Emissions (III.B)

EU022 - Sinter Plant Stack (7P)	EU015 – Cottrell Penthouse (7V)
EU020 - Acid Plant Stack (8P)	EU017 - Mist Precipitator Building (24V)
EU045 - Blast Furnace Stack (16P)	EU018 – Pump Tank Building (26V)
EU008 - CSHB Stack (6P)	EU016 - Acid Plant Scrubber Towers (27V)
EU012 - #7 Sinter Plant Roof Baghouse Stack (3Pa)	EU014 - #8 Sinter Plant Roof Baghouse Stack (4Pa)

These emission units are subject to the requirements of the SO₂ Control Plan, and have SO₂ limitations imposed upon them from the SIP. Emissions between the Sinter D&L, Blast Furnace, and Acid Plant stacks are bubbled, and all stacks have CEMS in place and operating. The CEMS on EU022, EU020, and EU045 must satisfy a Quarterly Data Recovery Rate (QDRR) of 94% for each CEM. Each monitor must satisfy the requirements of the SO₂ Control Plan and 40 CFR Part 60, Appendix B.

The larger emission units are either tested annually or every 2 years for Lead, and those with baghouse emission control are subject to the requirements of the Baghouse Inspection and Maintenance Program. Because the emission envelope allows the Blast Furnace emission limit to vary, ASARCO continuously samples Sinter Plant feed materials for sulfur content, and also samples the Sinter charged to the Blast Furnace. The parameter monitoring is used to calculate Surrogate Hourly SO₂ emission rates for both the Sinter Plant and the Blast Furnaces. If CEMS data is unavailable, then Surrogate Emission Rates are used for compliance determinations, as described in the SO₂ Control Plan.

The identified schedule of monitoring, testing, weekly visual surveys, as well as the operation of CEMS and the availability of surrogate emission rate data, provides reasonable assurance that these emission units maintain compliance with the emission limitations imposed by this permit.

Lead MACT Process & Process Fugitive Sources (III.C)

EU039 - Blast Furnace #1	16P	EU021 – Sinter Plant Weak Gas – Cyclone	7P
EU040 - Blast Furnace #3	16P	EU022 – Sinter Plant Weak Gas - Baghouse	7P
EU041 - Blast Furnace Tapping Platform	16P	EU010 – Sinter Plant Ventilation System	6P
EU062 - Dross Plant Kettle #4	21P	EU011 –Sinter Plant Roof	3Pa
EU063 - Dross Plant #4 Launder	21P	EU013 –Sinter Plant Roof	4Pa
EU064 - Dross Plant Reverberatory Furnace	21P	EU019 –Sinter Plant Strong Gas - Acid Plant	8P
EU065 - Dross Plant Reverberatory Furnace Charge Hole	21P	EU015 –Sinter Plant Strong Gas - Hot Cottrell	8P
EU066 - Dross Plant Speiss/Matte Tap	21P		
EU067 - Dross Plant Speiss/Matte Launder	21P		

The lead MACT imposes a facility-wide lead emission limit based upon the quantity of lead produced. The limit is 500 grams of lead per megagram of lead produced from the aggregation of emissions from air pollution control devices. The facility will perform annual testing for lead on stacks 3Pa, 4Pa, 6P, 7P, 8P, 16P, 21P, and 23P. The MACT requires that the Sinter Plant Building maintain a positive inflow (the building shall be maintained under negative pressure) at all times, and measure at all openings to demonstrate compliance.

The baghouses employed for emission control are required to employ broken bag detectors. The bag leak detection system alarms are not to exceed 5% of the total operating time during a 6-month period. The MACT provides a thorough discussion of the procedures to calculate emissions, and determine compliance with, the lead limitations above.

The identified schedule of monitoring, testing, and weekly visual surveys provides reasonable assurance that these emission units maintain compliance with the plant-wide emission limitation imposed by this permit.

Lead MACT Fugitive Dust Sources (III.D)

EU038 - Blast Furnace Feed Floor Fugitives	9V	EU004 – High Grade Building Dumping Area	4V
EU042 - Blast Furnace Tapping Fugitives	10V	EU048 – Hopto Unloading & Blast Furnace Dust Reclaiming	2V
EU043 - Slag handling Area Fugitives	11V	EU006 - Old Ore Storage Yard	3V
EU044 - Slag Pile Dumping Area Fugitives	12V	EU029 – Direct Smelt Bins	8Vi
EU049 - Breaking Floor Building	8Va	EU072 – Speiss/Matte handling	15V
EU047 - Blast Furnace Flue Cleanout	19V	EU028 – Outdoor Sinter Storage and Sinter Handling	8Vf
EU074 - Unpaved Plant Areas & Roads	2A	EU076 – Wind Erosion	1A
EU073 - Paved Plant Areas & Roads	3A	EU075 – Haul Trucks	

ASARCO must submit for review and approval a Fugitive Dust Control Plan, or Standard Operating Procedures Manual, as a requirement of the Lead MACT. ASARCO shall operate in conformance with the requirements of the Fugitive Dust SOP Manual for fugitive dust sources.

Existing SIP fugitive dust control requirements may satisfy this requirement, if the SIP control plan addresses all of the requirements specified by the MACT. The Lead SIP's fugitive dust control measures are extensive, and will not be repeated here. ASARCO's SOP manual will provide both the facility and the Department a consolidated reference of all fugitive dust control requirements, which at a minimum must include all the existing SIP control requirements.

The Fugitive Dust Control Plan SOP Manual is provided in 40 CFR Part 63, Subpart TTT, Section 63.1544. The Department has not yet determined if all MACT requirements are satisfied by the current SIP control plan for fugitive dust, and if the draft SOP satisfies all of the MACT requirements and also adopted all of the SIP requirements. The SOP must be finalized and approved by the Department before the MACT compliance date of May 4, 2001.

EU001 - Sample Mill - 1P (III.E)

EU005 - Rail Car Loadout Hopper - 23P (III.I)

EU046 - Blast Furnace Baghouse Dust Cleanout Baghouse (16P) (III.AB)

EU051 - Tetrahydrite Baghouse (10P)(III.AG)

EU052 - Tetrahydrite Building (16V)(III.AG)

The above emission units have baghouse emission control, and are subject to a baghouse inspection and maintenance plan. The emission units have either lead, particulate matter, or grain loading limits, are required to monitor the hours of baghouse fan operation, and have minimum air flow requirements that require testing annually. The baghouse I&M plan requires at least weekly visual surveys and inspections. The baghouse I&M, combined with the additional monitoring requirements noted above, substantially assures compliance with the limitations each emission unit is subject to.

EU002 - Laboratory - 2P (III.F)

EU003 - Thaw House - 28V (III.G)

EU049 - Breaking Floor Building (8Va) (III.AE)

These emission units are required to perform monitoring and recordkeeping to demonstrate compliance with the limits each has. EU049 also has a Natural Draft Opening (NDO) requirement that is satisfied by measurement. Particulate emissions are diminutive, and the demonstration for these EU's shall be "Normal Operations".

The monitoring and recordkeeping performed for these sources are adequate to assure compliance with the emission limits each must satisfy.

EU004 - High Grade Building Dumping Area - 4V (III.H)

EU028 - Outdoor Sinter Storage and Sinter Handling (8Vf) (III.S)

EU030 - Coke Handling (29V) (III.U)

EU050 - Reagent Bin Material Handling (30V) (III.AF)

ASARCO must perform monitoring and recordkeeping to demonstrate compliance with the "Tons of Material Processed" and "Tons of Material Dropped" limitations for EU004 and EU028. The emission units above also require that ASARCO exercise reasonable precautions, and perform visual surveys weekly, to assure compliance with the opacity and particulate matter limits each must satisfy.

EU006 - Old Ore Storage Yard (3V) (III.J)

EU029 - Direct Smelt Bins & Direct Smelt Building (8Vi) (III.T)

EU047 - Blast Furnace Flue Cleanout (19V) (III.AC or CC)

EU048 - Hopto Unloading and Blast Furnace Baghouse Dust Reclaiming (2V) (III.AD or DD)

The emission units above are required to demonstrate compliance with lead emission limits for material handling operations. Each also has a maximum quantity of material that may be processed during any quarter. These limitations are satisfied by performing monitoring and recordkeeping using payload load cell measurement systems employed at the facility. The above emission units are also subject to a maximum wind speed requirement which prohibits material handling if wind speed the hour before is 12 mph or greater. ASARCO operates a meteorological monitoring station at the facility to provide contemporary met data to the facility.

ASARCO shall conduct visual surveys at least weekly, and utilize the payload systems, to demonstrate compliance with the limitations of the above emission units. The Department believes that the monitoring and recordkeeping performed for these sources are adequate to assurance compliance with the emission limits each must satisfy.

EU007 - Concentrate Storage & Handling Building - (6P) (III.K)

The CSHB has 3 baghouses that provide ventilation and emission control. The CSHB stack, 6P, has limits for Opacity, PM, Lead, and SO₂. The CSHB stack has the highest lead emission limit at the facility. The baghouses must also satisfy a minimum air flow requirement. Testing is performed annually on the CSHB stack for lead and flow rate, every 2 years for SO₂, and at least every 5 years for PM. The baghouses are subjected to a baghouse I&M plan, which includes weekly visual surveys.

The baghouse I&M plan and annual testing provides reasonable assurance that this emission unit maintains compliance with the emission limitations imposed by this permit.

Sinter Plant and Associated Emission Units

EU009 - Sinter Plant Building (6V) (III.L)
EU010 - Sinter Plant Ventilation System (6P) (III.M)
EU011 - #7 Sinter Plant Roof Baghouse (3Pa) (III.N)
EU013 - #8 Sinter Plant Roof Baghouse (4Pa) (III.N)
EU015 - Sinter Plant Cottrell (ESP) (7V) (III.O)
EU016 - Sinter Plant Scrubber Towers (27V) (III.O)
EU017 - Mist Precipitator Building (24V) (III.O)
EU018 - Pump Tank Building (26V) (III.O)
EU019 - Single Contact Acid Plant (8P) (III.O)
EU021 - Sinter Plant Tail Gas Cyclone (inlet of EU022) (III.O)
EU022 - Sinter Plant Tail Gas (D&L) Baghouse (7P) (III.O)
EU024 - Sinter Storage Building Baghouse (21P) (III.P)

The Sintering Process is the largest source of SO₂ at the facility, and also has the highest SO₂ emission limits at the facility. The SIP SO₂ control plan defined an emission envelope (bubble) involving the Sinter (D&L) Stack, the Blast Furnace Stack, and the Acid Plant Stack. All three stacks have continuous emission monitors (CEMS) for SO₂ and flowrate, and must satisfy a minimum quarterly data recovery rate (QDRR) of 94%. The SIP emission envelope sets the Blast Furnace SO₂ emission limit off of the emissions from the Sinter D&L stack. Appendix E of this permit, and section III.B of the operating permit, provide the relationship between the Sinter and Blast, holding the Acid Plant emissions at a constant.

The significant sinter plant emission points are the Acid Plant Stack and the Sinter D&L Stack, 8P and 7P. The Acid Plant vents to stack 8P, and is preceded by an ESP to control particulate emissions, the Cottrell. The Sinter Tail Gas Baghouse vents to the D&L stack (7P), and is preceded by a cyclone. The sinter plant has 5 baghouses that provide ventilation and emission control, all subject to the baghouse I&M plan. The MACT requires that the Sinter Plant Building maintain a positive inflow (the building shall be maintained under negative pressure) at all times, and be measured at all openings to demonstrate compliance.

The emission units EU010, EU011, EU013, EU019, and EU022 are subject to annual testing for lead and flowrate; EU019 and EU022 are subject to annual testing for SO₂ as well as operating CEMS. The D&L baghouse is monitored w/ a broken bag detector and alarm system. All baghouse fans are monitored for hours of operation. The identified schedule of monitoring, testing, and weekly visual surveys provide reasonable assurance that these emission units maintain compliance with the emission limitations imposed by this permit.

Acid Dust Handling & Conveying System

EU025 - Acid Dust Bin (7P) (III.Q)
EU021 - Acid Dust Bin Building (17V) (III.Q)
EU027 - Agglomerator Building (6P) (III.R)

The acid dust handling and conveying system is responsible for managing the ESP, cyclone, and (D&L) baghouse capture. The acid dust captured by these control devices is pneumatically transferred to the 130-ton Acid Dust Bin, which provides emission control to the Acid Dust Bin Baghouse. The dust is then pneumatically transferred to the Agglomerator Building, which houses the Dustmaster, a surge bin, and

bin baghouse. The baghouses and Dustmaster all vent to additional control devices (all baghouses). The system, with the redundant control devices in operation, does not have emission limits, but all baghouses are subject to the baghouse I&M plan, and subject to weekly visual surveys. The identified monitoring and weekly visual surveys provide reasonable assurance that these emission units maintain compliance with the requirements imposed by this permit.

EU031 - EU035 Blast Furnace Charge Building (III.V)

EU031 - Blast Furnace Charge Building (8Vb)
EU032 - Portland Cement Silo Baghouse (21P)
EU035 - Agglomerator Charge Hopper Baghouse (21P)

EU033 - Blast Furnace Baghouse Dust Silo Baghouse (21P)
EU034 - Blast Furnace Charge Building Charge Hopper Baghouse (21P)

The emission units of the Blast Furnace Charge Building have ventilation and emission control requirements. All ventilation and emission control is provided by baghouses, which are all subject to the baghouse I&M plan. The baghouses are all subject to the weekly visual survey requirements. Emission Unit EU031, the BF Charge Building itself, has a quarterly lead emission limit and a NDO requirement. ASARCO shall demonstrate compliance with the lead emission limit by performing monitoring and recordkeeping. The identified monitoring and weekly visual surveys provide reasonable assurance that these emission units maintain compliance with the requirements imposed by this permit.

Blast Furnaces and Associated Emission Units

EU037 - Blast Furnace Feed Floor Controlled Emissions (16P)(III.W)
EU038 - Blast Furnace Feed Floor Fugitive Emissions (9V)(III.W)
EU039 - #1 Blast Furnace (16P)(III.X)
EU040 - #3 Blast Furnace (16P)(III.X)
EU041 - Blast Furnace Tapping Platform Controlled Emissions (16P)(III.Y)
EU042 - Blast Furnace Tapping Platform Fugitive Emissions (10V)(III.Y)
EU045 - Blast Furnace Stack - 16P (III.AA)
EU043 - Slag Handling Area Fugitive Emissions (11V)(III.Z)
EU044 - Slag Pile Dumping Area Fugitive Emissions (12V)(III.Z)

Emissions from blast furnace operation, including charging and tapping, are captured by the Blast Furnace Baghouse, and vent to the Blast Furnace Stack (16P). The Blast Furnace Stack has limits for opacity, particulate matter, lead, and sulfur dioxide. The stack is monitored continuously by CEMS and COMS, is monitored by a broken bag detector and alarm system, and the baghouse is subject to the rigors of the baghouse I&M plan, including weekly visual surveys.

The blast furnace operations, venting to stack 16P, have significant particulate, lead, and SO₂ emissions. The ventilation and emission control system that vents to stack 16P is required to maintain minimum flowrate requirements for the system, and also at feed floor (EU037), and the tapping platform (EU041). Fans operated for ventilation and baghouse operation must monitor hours of operation continuously.

ASARCO cannot operate both furnaces at the same time, and they have annual furnace lead and slag production limits. Annual testing is performed for lead, SO₂, and flowrate; the CEMS must satisfy the 94% QDRR. The identified schedule of monitoring, testing, weekly visual surveys, as well as the operation of CEMS and COMS, and the availability of surrogate emission rate data, provide reasonable assurance that these emission units maintain compliance with the emission limitations imposed by this permit.

Dross Plant and Associated Emission Units (Building, Processes, Baghouse, Stack)

EU053 - EU058 Dross Plant Combustion Emissions (21P) (III.HH)

EU053 - Kettle # 1 Combustion Emissions
EU054 - Kettle # 2 Combustion Emissions
EU055 - Kettle # 3 Combustion Emissions

EU056 - Kettle #4 Combustion Emissions
EU057 - #4 Launder Combustion Emissions
EU058 - Reverberatory Furnace Combustion Emissions

EU059 - EU067 Dross Plant Process Emissions (21P) (III.II)

EU059 - Kettle # 1 Process Emissions
EU060 - Kettle # 2 Process Emissions
EU061 - Kettle # 3 Process Emissions
EU066 - Speiss/Matte Tap
EU067 - Speiss/Matte Launder

EU064 - Reverberatory Furnace
EU065 - Reverberatory Furnace Charge Hole
EU062 - Kettle # 4 Process Emissions
EU063 - #4 Launder

EU068 - Dross Plant Building (19P) (III.JJ)

EU069 - Dross Plant Baghouse (21P) (III.KK)

EU070 - Dross Plant Stack - 21P (III.LL)

The Dross Plant receives the furnace lead for further refining and processing. Combustion emissions are vented to the roof of the Dross Plant Building, and controlled by the Dross Plant Stack. Process Emissions, most significantly lead and SO₂, are diverted by various kettle and furnace hoods through a Dross Plant ventilation system to the Dross Plant Baghouse. The Dross Plant baghouse vents to the Dross Stack (21P). The Dross Plant Building is subject to an NDO requirement.

The Dross Baghouse Stack (21P) has limitations and testing requirements for lead, SO₂, particulate matter, and is monitored by a COMS (NSPS). The Dross Baghouse also has a grain-loading requirement. Testing for lead, particulate matter, and flowrate occur annually, and every 2 years for SO₂. The ventilation system must satisfy minimum flowrate requirements, and the baghouse fan is monitored for hours of operation.

The Dross Plant Baghouse is subject to the requirements of the baghouse I&M plan, including weekly visual surveys. A broken bag alarm system is employed on this baghouse and stack. The identified schedule of monitoring, testing, weekly visual surveys, as well as the operation of COMS, and use of a broken bag detectors and alarm system, provides reasonable assurance that these emission units maintain compliance with the emission limitations and requirements imposed by this permit.

EU071 - Speiss & Matte Granulating Pit (16P)(III.AMM)

EU072 - Speiss & Matte Handling Facility (15V)(III.MM)

Speiss and Matte, tapped from the Reverberatory Furnace in the Dross Plant, are cooled/granulated in the granulating pit (bunker). Ventilation and emission control is currently provided by the Blast Furnace Baghouse. The ventilation and emission control are monitored at least weekly as part of the baghouse I&M plan that applies to the Blast Furnace Baghouse, and associated ventilation equipment operation. The weekly monitoring provides reasonable assurance that these emission units maintain compliance with the requirements imposed by this permit.

EU073 - Paved Plant Areas and Roads within the ASARCO Facility (3A) (III.NN)

EU074 - Unpaved Plant Areas and Roads within the ASARCO Facility (2A) (III.OO)

EU075 - Haul Trucks (III.PP)

EU076 - Wind Erosion (1A) (III.QQ)

The emission units above are discussed in detail within the Lead SIP and will be part of the Fugitive Dust SOP Manual being developed for the MACT. The requirements include the operation of street sweepers, vacuum trucks, maintaining paved roadways and areas, applying dust suppressants to unpaved areas and roadways, chemically sealing outdoor storage piles, and numerous other fugitive dust mitigations. The requirements require daily visual surveys and recordkeeping. The daily monitoring provides reasonable assurance that these emission units maintain compliance with the requirements imposed by this permit.

EU077 – EU080 HERO Water Treatment Plant (III.RR)

EU077 – Spray Dryer (& Baghouse) (22P)

EU078 – Dust Silo (& Bin Vent Baghouse) (22P)

EU079 – Load Out Ventilation Fan (22P)

EU080 – HERO Degassifier Vents

The spray dryer and baghouse are subject to a grain-loading limit, with Method 5 testing required every 2 years. The dryer baghouse is subject to the baghouse I&M plan, and will be visually surveyed at least weekly. The dryer baghouse will also be monitored by a broken bag detector and alarm system. The weekly monitoring, operation of the broken bag detector and alarm system, and every-2-year testing provides reasonable assurance that these emission units maintain compliance with the requirements imposed by this permit

EU081 – EU082 and EU046 Printed Circuit Board Material (CBM) Processing (III.SS)

EU081 – Coreco Rotary Melting Furnace (16P)

EU082 – John Zink Thermal Oxidizer Unit (16P)

EU046 – Blast Furnace Baghouse Dust Cleanout Baghouse (16P)

CBM processing, which requires the operation of a rotary furnace and thermal oxidation unit (TOU), or incinerator, followed by baghouse control. The rotary furnace processing the CBM is subject to a production limit, on a rolling 12-month average, and cannot operate if the Blast Furnace Baghouse Dust Cleanout Baghouse (EU046) is being operated to control emissions from the Blast Furnace Baghouse Dust Reclaiming Area.

The rotary furnace cannot begin processing the CBM until the TOU reaches operating temperature; the TOU operating temperature must be continuously measured and recorded. The baghouse will be subject to the baghouse I&M plan and weekly visual surveys. The weekly visual surveys, continuous TOU temperature monitoring, and production limitation provides reasonable assurance that these emission units maintain compliance with the requirements imposed by this permit

EU083 - Gasoline Storage Tank(s) (III.TT)

The only requirements the gasoline storage tank(s) are subject to are ARM 17.8.324(3) and 304(2). Demonstration of compliance is annual certification of approved tank loading (submerged fill), or use of a vapor loss control device, or use of pressure tank (324(1)). A Method 9 test, performed as required (Department request), shall demonstrate compliance for this emission unit.

EU084 - EAST HELENA PAVED ROAD DUST CONTROL PLAN (III.UU)

The East Helena paved road dust control plan requires street and road cleaning as necessary, with frequent road dust sampling and analysis, to demonstrate compliance with the lead loading limit for silt in road dust. The plan will not be reviewed here; however, it is available in Attachments #1 and #3 of the SO₂ Control Plan. ASARCO has been successfully implementing the control plan as part of the Lead SIP.

C. Test Methods and Procedures

The operating permit may not require testing for all sources if routine monitoring is used to determine compliance, but the Department has the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, the permittee may elect to voluntarily conduct compliance testing to confirm its compliance status.

D. Recordkeeping Requirements

The permittee is required to keep all records listed in the operating permit as a permanent business record for at least five (5) years following the date of the generation of the record.

E. Reporting Requirements

Reporting requirements are included in the permit for each emission unit and Section V of the operating permit "General Conditions" explains the reporting requirements. However, the permittee is required to submit semi-annual and annual monitoring reports to the Department and to annually certify compliance with the applicable requirements contained in the permit. The reports must include a list of all emission limit and monitoring deviations, the reason for any deviation, and the corrective action taken as a result of any deviation.

F. Shut-Down Certification/Reporting Requirements:

If the permitted facility or a specific emitting unit(s) within the permitted facility are presently shut down and have been shut down for the entirety of the applicable reporting period, a certification statement of shut-down may serve as the required applicable reporting requirement(s).

G. Public Notice

A public notice was not required for this permit action because it was an administrative amendment under ARM 17.8.1225.

SECTION IV NON-APPLICABLE REQUIREMENT ANALYSIS

ASARCO requested a finding of non-applicability for 40 CFR Part 60, Subpart R. Subpart R is the NSPS subpart applicable to primary lead smelters. The Department will not provide the requested exclusion for the following reasons: The ASARCO East Helena facility is a primary lead smelter, and the Dross Plant is an affected facility of this subpart, and subject to the requirements of R, and also subject to the general provisions of Subpart A. ASARCO also requested that Subparts R and T of 40 CFR Part 61 be included in the listing of non-applicable requirements found in Section IV of the operating permit, and the Department has accommodated that request.

SECTION V FUTURE PERMIT CONSIDERATIONS

A. MACT Standards

ASARCO is subject to the requirements of 40 CFR Part 63, Subpart TTT, promulgated June 4, 1999. As of October 15, 2003, the department is not aware of any other MACT Standards that are applicable to this source.

B. NESHAP Standards

As of the date of issuance of this permit, the only NESHAP standard that ASARCO is subject to is 40 CFR Part 61, Subpart M, "National Emission Standards for Hazardous Air Pollutants for Demolition and Renovation," this standard is applicable to any asbestos project. The Department is not aware of any future requirement that may be promulgated during the permit term for which this facility must comply.

C. NSPS Standards

ASARCO was constructed prior to promulgation of 40 CFR Part 60, Subpart R, Standards of Performance for Primary Lead Smelters. However, the Dross Plant, an NSPS affected facility, was reconstructed and is subject to Subpart R. The Department is not aware of any additional NSPS affected sources at ASARCO.

D. Risk Management Plan

As of this date (10/15/03), this facility does not exceed the minimum threshold quantities for any regulated substance listed in 40 CFR 68.115 for any facility process. Consequently, this facility is not required to submit a Risk Management Plan.

If a facility has more than a threshold quantity of a regulated substance in a process, the facility must comply with 40 CFR 68 requirements no later than June 21, 1999; three years after the date on which a regulated substance is first listed under 40 CFR 68.130; or the date on which a regulated substance is first present in more than a threshold quantity in a process, whichever is later.